

Attorney Docket No. 1022702-000291

) **Mail Stop APPEAL BRIEF -**
) **PATENTS**

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Examiner: Chantel Loran Graham

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This interpretation is incorrect. As set forth in paragraphs [0025] - [0027] of Blanchard et al.:

It is also possible to use the technique of cryo-TEM to determine the state of aggregation of the elementary particles. It allows transmission electron microscopy (TEM) to be used on samples that are kept frozen in their natural medium, which is either water or organic diluents such as aromatic or aliphatic solvents, for example Solvesso or Isopar, or certain alcohols such as ethanol.

Freezing is carried out on thin films about 50 x 100 nm thick either in liquid ethane for aqueous samples or in liquid nitrogen for others.

Cryo-TEM preserves the state of dispersion of the particles and is representative of that state in the actual medium.
(Emphasis added)

As evident from the above, "cryo-TEM" refers to the technique of freezing a dispersion, and then examining it using TEM, or a transition electron microscopy. In paragraph 28, the reference to the preservation of the state of the dispersion clearly refers to the freezing of the dispersion prior to examination using TEM. Nothing is added to the dispersion described in Blanchard et al. More specifically, there is no "preservative" additive described in the cryo-TEM procedure set forth in Blanchard et al.

II. *The Grounds for Rejection Rely Upon the Improper Premise that the Diluents of Blanchard et al. can constitute both the claimed "organic phase" and the additional claimed constituent - "antioxidant"*

It is alleged on page 5 of the Examiner's Answer that:

BLANCHARD does not explicitly disclose that the diluent (antioxidant) are phenols. . .

Therefore, the grounds for rejection rest upon the premise that diluents disclosed by Blanchard et al. constitute both the claimed organic phase as well as

the claimed antioxidant. This interpretation of the claimed invention is clearly incorrect. Every independent claim on appeal is clear on its face that it includes both an organic phase, and an additional constituent in the form of an antioxidant. This is made abundantly clear, not only from the face of the claims themselves, but from the present specification. References to the present specification will be made by reference to the paragraph numbers appearing in the published version of the present specification U.S. 2006/0196108. For example, it is disclosed in the present specification that:

For this purpose, the dispersion of the invention, which is of the type comprising particles of a rare earth compound, an acid and an organic phase, is characterized in that it further comprises an antioxidant. ([0007]; Emphasis added)

In addition, it is important to note that paragraphs [0046] - [0048] of the present application appears to be identical to the description of the cryo-TEM procedure of the dispersion described in the Blanchard et al. reference appearing in paragraphs [0026] - [0028] which are quoted above. Thus, in paragraphs [0046] - [0048] of the present specification, reference is also made to the exact same diluents (aromatic or aliphatic solvents, for example, Solvesso and Isopar, or certain alcohols such as ethanol) as identified in the Blanchard et al. reference. However, the present specification clearly discloses a further constituent component of the dispersion in the form of the claimed antioxidant. Reference is made again to paragraph [0007] which is reproduced above. In addition, reference is made to paragraph [0072] of the present specification.

Moreover, the examples set forth in the present specification refer specifically to the Blanchard et al. reference as a base for the dispersions formed according to the principles of the present invention. Namely, as set forth in paragraph [0092] of

the present specification, a dispersion is formed by starting with inorganic dispersion including Isopar as a diluent, or organic phase. However, as made clear from the examples, an additional constituent in the form of an antioxidant is added thereto.

Therefore, under the correct interpretation of the claimed invention, a dispersion must have both an organic phase, and as a separate constituent component, an antioxidant. The assertions contained in the Examiner's Answer that the diluent serves to satisfy both the claimed organic phase and antioxidants clearly ignore positively recited limitations appearing in each independent claim present on appeal. Therefore, the grounds for rejection are improper and must be reversed.

III. *Wakefield Does not Cure the Deficiencies of the Colloidal Dispersion Disclosed by Blanchard et al.*

The only mention of antioxidants in Wakefield is in the context of an additive to bulk diesel fuel compositions, not colloidal dispersions, much less colloidal dispersions containing cerium, an acid, an organic phase, and an element E, as required by the presently claimed invention. In this regard, Wakefield discloses at paragraphs [0046] and [0053]:

Typical additives which can be used in the fuel compositions, especially diesel fuel, include those conventionally used, such as: -- . . . Anti-oxidants e.g. phenolics such as 2,6-di-tert-butylphenol, or phenylenediamines such as N,N'-di-sec-butyl-p-phenylenediamine.

In the Examiner's Answer, it is alleged on page 6 that it would have been obvious to modify the dispersion described in Blanchard et al. with the antioxidant disclosed in Wakefield because:

It would have been obvious to one of ordinary skill in the art to combine the additive of BLANCHARD with the additive of WAKEFIELD if said composition was so desired, because all the claimed elements were known in the prior art at the time

of invention and the motivation to combine BLANCHARD and WAKEFIELD is taught in WAKEFIELD in paragraph 5, that for cerium to be effective in diesel fuels as an additive it must be used in a stable dispersion.

First, it is noted that simply because antioxidants may have arguably been known in the art at the time of invention, is of no moment to establishing an appropriate *prima facie* case of obviousness. Knowledge of the constituent elements alone is clearly insufficient to establish or be equated with obviousness.

With respect to the teachings of Wakefield in paragraph [0005], Wakefield discloses:

The above catalytic activity may occur when cerium oxide is added as an additive to fuel, for example diesel or petrol. However, in order for this effect to be useful the cerium oxide must be of a particle size small enough to remain in a stable dispersion in the fuel. The cerium oxide particles must be of a nanocrystalline nature, for example they should be less than 1 micron in size, and preferentially 1-300 nm in size. In addition, as catalytic effects are surface area dependant the small particle size renders the nanocrystalline material more effective as a catalyst.

The only thing discussed in paragraph [0005] of Wakefield is that cerium oxide should be provided in a dispersion at a size less than 1 micron in size, and preferably 1-300 nm in size. There is no mention or suggestion whatsoever that an antioxidant can be useful for achieving this objective. Therefore, the only concrete reference to a basis for an appropriate motivation for the proposed combination of Blanchard et al. with Wakefield does not support the grounds for rejection. In other words, paragraph [0005] of Wakefield would not have motivated one of ordinary skill in the art to attempt to add an antioxidant to the colloidal dispersion disclosed by Blanchard et al. The grounds for rejection improperly use the Applicants' own

disclosure as a road map for reconstructing the prior art, is therefore based upon in the impermissible use of hindsight. The rejection must be reversed.

IV. The Grounds for Rejection are Also Based Upon a Legally Inadequate Rationale

It is alleged on page 16 of the Examiner's Answer that:

The Examiner is of the position that the claimed invention would have been obvious because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination yielded nothing more than predictable results to one of ordinary skill in the art.

As evident from the above, the stated rationale that one skilled in the art "could have combined" is clearly an improper rationale for establishing a *prima facie* case of obviousness. Namely, controlling precedent dictates that assertions with regard to what is within the capabilities of one of ordinary skill in the art cannot be permissibly equated with obviousness. Ex parte Levengood, 28 USPQ2d 1300 (B.P.A.I. 1993) (a mere statement that the proposed modification is within the capabilities of those of ordinary skill in the art is insufficient to establish a *prima facie* case of obviousness).

V. Applicants' Evidence of Superior and Unexpected Results Have Been Improperly Dismissed

As previously noted, the composition according to the claimed invention has been directly compared in the present specification with the composition of the dispersion disclosed by Blanchard et al. See, e.g., paragraph [0092] plus of the present specification. Despite this direct comparison with what is believed to be the closest prior art, the evidence is nonetheless dismissed as being "not commensurate with the scope of the claims." No further basis is given for the conclusion that the

evidence of unexpectedly superior results is insufficient. However, the evidence need not have an exact identity with the scope of the claims. In re Kollman, 595 F.2d 48, 56 (CCPA 1979) (unobviousness of a broader claimed range can be overcome by evidence pertaining to a narrower range of data). For the reasons set forth herein, and of record, Applicants contend that it is clear that a *prima facie* case of obviousness has not been established. To the extent that the Board considers that such a *prima facie* case exists, it has clearly been rebutted by evidence of the direct comparison with Blanchard et al. contained in the present specification. This evidence has been improperly discounted. No explanation is given other than that set forth above, which controlling precedent has already found to be clearly inadequate. Therefore, for at least this additional reason, the grounds for rejection are improper and must be reversed.

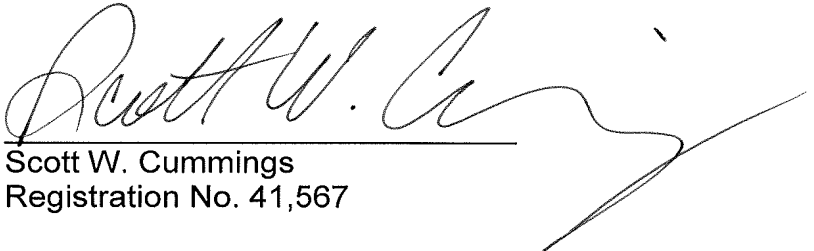
For at least the reasons given above, in the Appeal Brief of May 2, 2011, and appearing elsewhere in the prosecution record of this application, Appellant respectfully requests that the Board reverse the Examiner's rejections.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: September 27, 2011

By:



Scott W. Cummings
Registration No. 41,567

Customer No. 21839
703 836 6620